

## REMARKS

Claims 1-24 remain active in the application. Claims 1-4, 6-9, and 13-16 are amended without prejudice. Claims 19-23 were withdrawn from consideration. Claim 24 has been added.

Claims 1 and 14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Caccoma et al. (U.S.P. 4,341,090) (Caccoma).

Applicants respectfully traverse the rejection of claims 1 and 14 for the following reasons:

Applicants teach a carrier having a cavity holding a plurality of parts integral to the carrier. As explained to the Examiner during the Telephone Interview conducted on September 8, 2009, the parts to be assembled are integral to the carrier. That is to say that the parts are part and parcel of the carrier, simultaneously built with the carrier and made of the same material.

The same applies to the assembly area having a cavity provided with alignments integral to the assembly, and also applies to the transport which is integrated to the same substrate.

In contradistinction, Caccoma teaches a batch placement system for positioning chips and the like upon a substrate containing an array of sites wherein the actual positions on the substrate vary over successive substrates, and where the chips to be positioned are external to the batch placement system. Nowhere does Caccoma teach nor suggest that the ‘chips and the like’ (i.e., the parts to be assembled) must be integral to the carrier that contains not only the carrier holding a plurality of parts but also the assembly area having a cavity provided with the alignment posts and the transport for moving the parts to be assembled. Thus, the entire on-chip system includes all the cited elements, and thus, is totally self-contained in contrast with Caccoma chip mounting system.

Applicants respectfully draw the attention to the Examiner that the office Action states that

Caccoma teaches the same “chip mounting system” as Applicants. Applicants submit that their claim 1 teach an “on-chip system” and is totally unrelated to Caccoma’s.

In the course of the Telephone Interview, the Examiner directed Applicants’ representative to Caccoma’s Figures 2 and 4. Both figures show a chip feed 5 wherein individual chips are being fed in the mounting system and transported (Fig. 4, elements 24A-24B-24C). Nowhere does Caccoma teach nor suggest that the chips must be integrated to the carrier.

In summary, Caccoma teaches a batch placement system to place ‘chips and the like’ that are manufactured anywhere, and more specifically, outside the substrate. Applicants teach an on-chip assembly system with the carrier, all the parts to be assembled, the assembly area, the transport, and the cavity are all part and parcel of the same substrate and manufactured concurrently.

With regard to Claim 14, the Office Action states that Caccoma shows in Figure 1 a carrier and transport means controlled by driving means.

In response, Applicants submit that Claim 14 is dependent on claim 1, and as stated previously, even if, *arguendo*, the carrier and transport means are controlled by similar driving means, this still does not convert the batch placement system of Caccoma into an on-chip assembly system wherein the carrier, all the parts to be assembled, the assembly area, the transport and the cavity integrated to the same substrate, as taught by the Applicants.

In view of the foregoing, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of the claims 1 and 14 as being unpatentable over Caccoma.

The Office Action states that Claims 2-5 are unpatentable under 35 U.S.C. 103(a) over Caccoma in view of Arakawa et. al (Arakawa).

Neither Caccoma nor Arakawa, whether individually or in combination teach an **on-chip**

**assembly system** wherein a carrier holds parts to be assembled that are integral to the carrier, the assembly area having a cavity provided with alignment posts integral to the assembly area, and a transport having elements thereof integral to the substrate.

With reference to Claims 2 to 4, Applicants teach the formation of a cavity on a substrate with posts or angled sidewalls integral thereof, again in an on-chip assembly system wherein individually: the carrier, all the parts to be assembled, the assembly area, the transport and the cavity are integral of the respective system components.

Furthermore, Applicants contend that Arakawa's teaching is unrelated to the teaching of the Applicants, since besides not being integral to anything, Arakawa's teaches only alignment marks, which teach away from the posts taught by the Applicants, since Arakawa's alignment marks apply to 'batch alignment and positioning of independently manufactured packaged IC chips, whereas the posts taught by the Applicants are fabricated for alignment within the cavity integral to the substrate'. Thus, the combination of integral alignment posts within an integral cavity for a self contained, on-chip assembly teaches away from the combination of Caccomas' batch placement system and Arakawa's alignment marks.

The Office Action states that Claims 6 to 13 are rejected as being unpatentable under 35 U.S.C. 103(a) over Caccomma in view of Galli.

Applicants respectfully traverse the above rejection.

Galli's teaching relates to semiconductor chip packaging, wherein the carrier is a strip and the like, i.e., packaging components unrelated to the substrate. Galli never mentions nor suggests a mechanical system or sub-system built on a chip. In contradistinction, Applicants teach a plurality of in-situ parts of the same material and integral to the carrier. All references to 'mechanical tabs' in Galli are connections of the product to their film. Applicants' 'mechanical tabs' are integral with the parts, including the carrier which may subsequently be removed.

Now, the combination of Caccomma with Galli does not teach nor suggest an on-chip assembly

system wherein the carrier, all the parts to be assembled, the assembly area, the transport, and the cavity are integral of the same substrate. And just as significantly, the on-chip assembly system taught by the Applicants does not use components or materials that differ from the material used for the fabrication of the substrate.

The Office Action further states that Claims 15 to 18 are unpatentable under 35 U.S.C. 103(a) over Caccomma in view of Koibuchi.

Applicants respectfully traverse this rejection.

Applicants fail to see any correlation between Koibuchi's teaching to that of the Applicants, since Koibuchi teaches a tape-packaged IC placement on printed circuit boards, which offers no similarity to Applicant's teaching. Therefore, by combining Caccomma to Koibuchi, the resulting combination teaches a batch placement system to place chips on a substrate by way of a tape-packaged IC system for mounting chip devices on printed circuit boards, which is not operable since the combination of the teachings of Caccomma with Koibuchi are incompatible with each other.

In contradistinction, the Applicants teach an on-chip system with the carrier, all the parts to be assembled, the assembly area, the transport, and the cavity are all part and parcel (i.e., integral) of the same substrate and manufactured concurrently on-chip MEMS drive moving parts about on a single chip is clearly non-obvious over the combination of Caccomma with Koibuchi.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 1-18 as being unpatentable under 35 U.S.C. 103(a) over Caccomma in view of, respectively, Arakawa, Galli and Koibuchi.

In view of the foregoing arguments and amendments, Applicants believe that they have now overcome all the rejections to the application, and respectfully request that all the amendments be entered, and that the Examiner pass all the pending claims to issue.

Applicant's believe that no additional fees are due; however, if the USPTO believes a fee is due, please charge deposit account 09-0458.

If the Examiner has any questions or believes that further discussion will aid examination of the application, a telephone call to the undersigned Applicants' representative is encouraged.

Respectfully submitted,

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